

27. SYSTEMATICS OF UNDESCRIBED MALES OF SOME  
THYSANOPTERA FROM INDIA

(With four text-figures)

The present paper includes detailed description of so far undescribed males of *Streothrips arorai* (Bhatti), *Ernothrips lobatus* (Bhatti), *Areothrips longisetis* Anan., and *Androthrips flavitibia* Moulton.

1. *Streothrips arorai* (Bhatti)

(Figs. 1-3c)

*Aeolothrips arorai* Bhatti, 1967, *Thysanoptera Nova Indica* 4-5.

*Streothrips arorai* Bhatti, 1971, *Oriental insects* 5(1): 83-90.

Originally this species was described from only one female. Males smaller than females. The males agree with females in colour range but prothorax, fore legs and middle femurs yellow; distal two third of hind femurs, extremes of middle and hind tibiae, middle and hind tarsi are greyish brown.

Head wider than long, 154-157 long<sup>1</sup>, 185-198 across eyes, 205-210 across genae and 190-195 at base. Antennal segments, length (width); 31-34 (33-34); 51 (28); 100-105 (25-26); 98-100 (25-27); 72-75 (25-27); 11 (16); 9 (14); 8 (8); 8 (5). Segment II orange yellow. Sensory areas on segment III 33-36 long and on IV segment 47-49 long. Maxillary palpi; i, 42-45; ii, 28-30; iii, 8-10 long.

Prothorax 154-155 long and 230-240 across middle and 140-150 across base. Fore wing 700-750 long and 100-120 wide in the middle. Hind wing 650-680 long and 80-100 wide in middle. Middle tibiae 180-190 long and hind tibiae 230-235 long.

Abdomen 120-130 at base, 220-230 across middle and 80-90 across X tergite bears three pairs of bristles, the inner pair of bristles

<sup>1</sup> All measurements in microns unless otherwise mentioned.

curved outwardly. Segments II to V bear two pairs, VI to VII with three pairs and VIII with four pairs of accessory setae. Phallus 112 long. Total body length: 1.40 mm - 1.50 mm.

Material: 5 ♀♀, 3 ♂♂ from flowers of *Cassia fistula* and *Pongamia glabra*, Shasradhara, Dehra Dun on 12.6.1978, 3 ♀♀, 2 ♂♂ from *Aleurites* sp. and a wild shrub, Dehra Dun on 5.5.1979, Coll. Vijay Veer.

2. *Ernothrips lobatus* (Bhatti)

(Fig 4)

*Thrips (Ernothrips) lobatus* Bhatti, 1967, *Thysanoptera Nova Indica*, 18 pp.

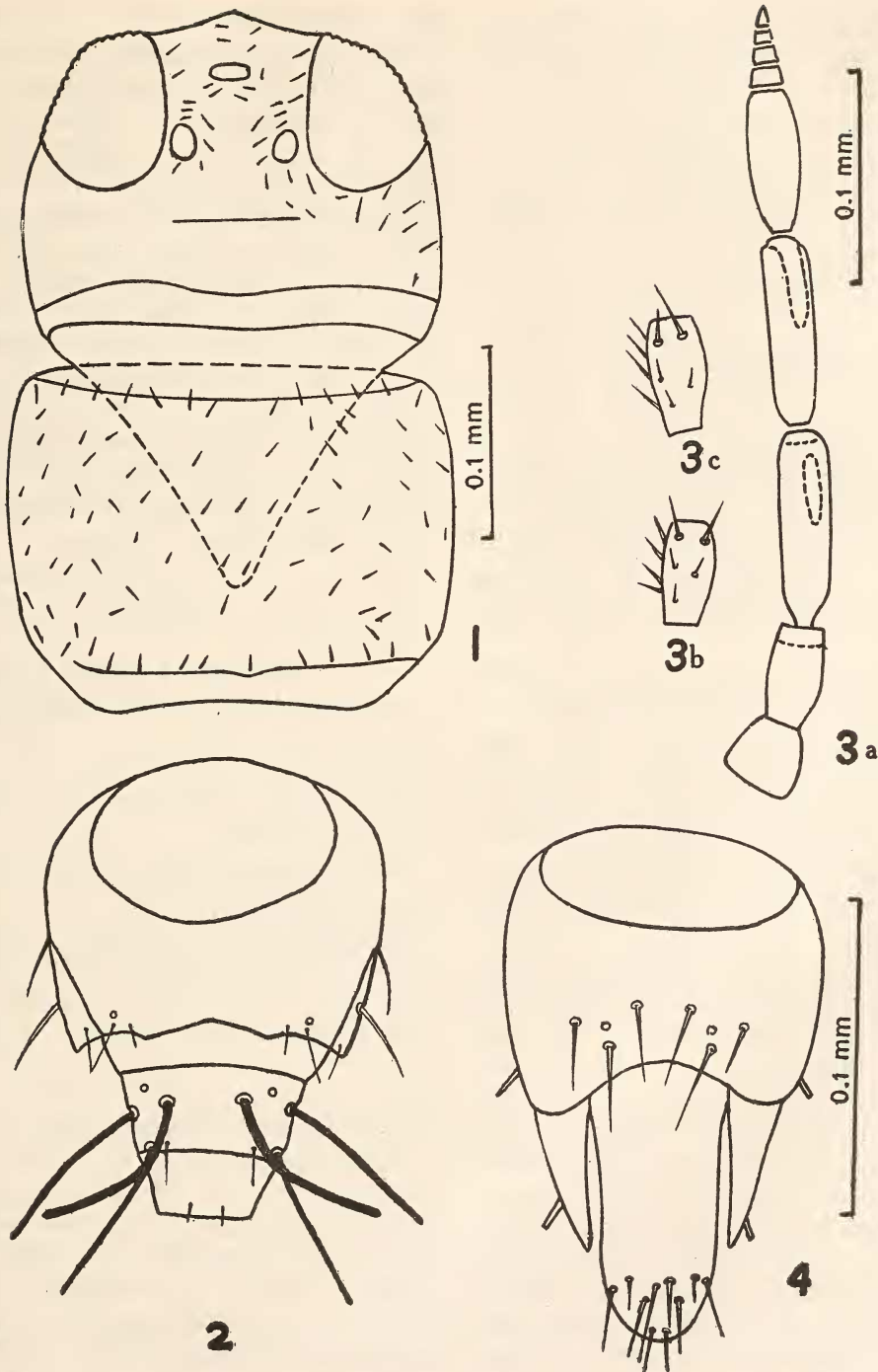
*Ernothrips lobatus* Bhatti. 1969. *Oriental Insects* 3(4): 373-382.

The original description of this species is only from one female.

The male differs from female, besides other characters, in being smaller in size and coloration. Body orangish-yellow. Antennal segments IV to VII are brown. Forewings brownish being darker at middle.

Head 78-80 long, 112-117 across eyes, 120-130 across genae, 126-133 across posterior margin. Mouthcone 82 long, Eyes 50-56 long, 39-45 wide, 42 apart from each other. Antennal segment: length (width): 18 (19); 28 (21); 33 (14-16); 28-30 (15); 26-28 (14); 35-39 (14); 14 (17).

Prothorax 106-108 long, 156-160 across middle postangulars; outer 19-23, inner 31-34. Pterothorax 106-208 long, 196-200 across mesothorax, 179-180 across metathorax. Fore wings



Figs. 1-3c. *Streothrips arorai*, ♂: 1, head and prothorax; 2, terminal abdominal segments, dorsal view; 3a, Antenna, dorsal view (microtrichia omitted); 3b, antennal segment II, dorsal view, showing chaetotaxy; 3c, antennal segment II, ventral view.  
 Fig. 4. *Ernothrips lobatus*: 4, terminal abdominal segments of ♂, dorsal view.

420-450 long, 31-33 across middle. Costa with 19-24 setae, upper vein with 4+3+2 setae, lower vein with 9-10.

Abdomen 103-110 across base, 126-130 across middle, 64-70 across X segment. Phallus 84-92 long. Terga and sterna of II-VIII with post-marginal flange but that on sterna produced into a fine comb.

Total body length: 80-90 mm.

Material: 10 ♀♀, 6 ♂♂ from flowers of *Lantana camara* Shashradhara, Dehra Dun, on 15.9.1978, 20 ♀♀, 12 ♂♂ from flowers of *Mallotus philippinensis*, Dehra Dun on 15.10.1978, Coll. Vijay Veer.

### 3. *Araeothrips longisetis* Ananthakrishnan

*Araeothrips longisetis* Ananthakrishnan, 1976, *Proc. Indian Acad. Sci.* 83 B(5): 202-204 (Holotype ♀ and paratypes 14 ♀♀ from Kanha Reserve Forest, Madhya Pradesh, India, 20.1.1970).

This species has been described by Ananthakrishnan (1976) on the basis of females.

Macropterous Male: General body colour similar to females. Body brown except distal one third of fore femora, all tibiae, all tarsi and antennal segments 3-8 (except the tip of VIII which is slightly darker), pale. Wings infumate, base and scale more yellowish. All setae greyish, blunt.

Head wider than long, 134 long, 140 across eyes, 154 across genae, 148 at base. Eyes 56-58 long, 33-35 wide; median ocellus 9 wide, Paired ocelli 11-12 wide and apart from each other 47. Mouth cone short, 61 long, broadly rounded, 126 wide at base and 50 wide at apex. Maxillary stylets widely separate and refracted into head about the level of the postoculars.

Postoculars 45-47, placed 103 apart from each other. Antennal segments, length (width); 17 (31); 36-37 (22); 36 (17); 25-27 (19); 28 (20); 25 (19); 28 (14); 39-42 (9). Sense cones on 3 and 4 10-14 long; Sense cone formula

3<sup>1+0</sup>, 4<sup>1+0</sup>, 5<sup>1+1</sup>, 6<sup>1+1</sup>.

Prothorax wider than long and shorter than head, 92 long, 168 wide across anterior margin and 184 across posterior margin. Anteroangulars and anteromarginals weak 3-6 long; mid-laterals 42-43, postangulars 76-80 and epimerals 48-50. Fore femora simple, 84-86 long, 44-46 wide, tarsi armed. Fore wings 450-460 long, 11-13 wide at middle with 3-4 double fringes. Basal wing setae 5, 6-7, 14-16 long. Pterothorax 196 long, 217-219 across mesothorax, 223-225 across metathorax.

Abdomen 145 across VIII, 100 across IX; B<sub>1</sub>-B<sub>3</sub> of IX 87-89, 16-18, 84-86 long. Tube 75 long, 42, 45, 28 wide respectively at base, middle and apex; anal setae 110-115 long.

Total body length: 1.00 mm.

Material: 2 ♀♀, 2 ♂♂ from leaves of wild plant, Tapoban, Dehra Dun on 10.4.1979, Coll. Vijay Veer.

### 4. *Androthrips flavitibia* Moulton

*Androthrips flavitibia* Moulton, 1933. *Indian Forest Records*, XIX (1): 1-2 (Holotype ♀ from New Forest, Dehra Dun, U.P.). *Androthrips flavitibia*, Ananthakrishnan; 1964, *Opusculent. Suppl.* 25:31.

This species has been described from one female by Moulton (1933).

Macropterous male. Smaller in size than females. Colour range agree with that of female; body dark brown except all tibiae, all tarsi and III-VI antennal segments clear yellow; fore femora yellowish brown in distal one third; sometimes antennal segments VII also brownish yellow in distal one third. Wings clear.

Head longer than wide, 115-204 long, 129-151 across paired ocelli, 143-145 across genae, and 120-145 across base. Eyes 45-48 wide, 67-75 long, 48-56 apart from each other. Median ocellus 14 wide, 17 apart from paired ocelli; 30-31 wide and 28-29 apart from each other; postoculars 53-70 long. Mouth cone 72-84 long

## MISCELLANEOUS NOTES

and 48-53 wide across tip. Antennal segments, length (width); 14-16 (28-31); 31-38 (26); 50-59 (31); 60-62 (28-31); 42-53 (22-25); 39-45 (19-22); 36-42 (14-17); 28-35 (8). Sense cones 28-30 long.

Prothorax 120-140 long, 168-184 wide across anterior margin, 234-260 across posterior margin. Anteroangulars 37-58, anteromarginals minute, midlaterals 36-58, epimerals 53-77, postangulars 50-75, Fore femora broad, 84-123 wide inclusive of tooth; width of fore tibia at apex, inclusive of scale 36-44.

Pterothorax longitudinally reticulate, with a minute pair of setae at middle, 22-25 long. Fore wings 600-750 long with 5-7 double fringes; basal wing bristles 42-56, 44-58 and 67-100 long respectively, the first two little expanded, the remaining one knobbed.

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DEHRA DUN-248 001,  
August 6, 1980.

Abdomen 92-98 wide across middle of IX segment, B<sub>1</sub>-B<sub>3</sub> bristles of IX segment 95-117, 20-31, and 126-154 long. Tube 117-140 long. 39-50 wide at middle; anal setae 110-182 long.

Total body length: 1.40-1.70 mm.

Material: 10 females and 5 males from galls of *Mallotus philippinensis* and *Casearia tomentosa* on 18.5.1979 and 25.4.1979 respectively from Raipur, Dehra Dun District, Coll. Vijay Veer.

### ACKNOWLEDGEMENT

We are thankful to Prof. T. N. Ananthakrishnan, Director, Zoological Survey of India for help. Thanks are also due to Dr. S. K. Sangal, Head of Zoology Department for providing laboratory facilities and encouragement.

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## 28. STUDIES ON KASHMIR HIMALAYAN UMBELLIFERAE III — SOME NEW RECORDS

Umbelliferae (now Apiaceae) is cosmopolitan in distribution with maximum diversity in northern hemisphere particularly in Central Asia and the Mediterranean region. The latter for sufficient reasons is regarded as the primary

centre of umbellifer diversity (Mathias 1965). Located as they are in mid-northern latitudes in physical contiguity with the centre of origin, Kashmir Himalayas too support a respectable number of umbellifers (Hamal & Koul 1981)